2019

ASKING DIFFERENT QUESTIONS

PRINCIPAL INVESTIGATORS:
Sara Giordano, Sarah McCullough, & Kalindi Vora

REPORT BY:
Eli Alston-Stepnitz

HTTPS://TINYURL.CO
M/Y66WWVEG

PROJECT BACKGROUND

Asking Different Questions: Interdisciplinary Approaches to Science is funded by National Science Foundation Innovations in Graduate Education grant (Co-PIs Sara Giordano, Sarah McCullough, and Kalindi Vora).

This project explores the following hypothesis: That changing research questions and research agendas will change who is in STEM and the knowledge we produce. This will include how to recognize and address issues of historical bias and cultural complexity, place research in a broader context, and better frame complex research questions, particularly those presented by communities traditionally under-served by science. Each week we explored a different challenge and feminist approaches to addressing this challenge. The sum of these conversations will contribute to the development of the curriculum, which will be the focus of the working group in Fall 2019.

OBJECTIVES

01 identify challenges in STEM graduate training that feminist training may help address

02 document how STEM scholars are already bringing values based in feminism and justice into their labs

03 create a community space for those invested in changing research culture through graduate education

04 establish shared values and build an institutional foundation for the success of a feminist training graduate program in STEM education

TOPICS

- pedagogy
- methods
- analysis
- cultures of science
- values of science

- mentoring
- community-engaged research
- funding structures
- institutional barriers
- models for collaboration
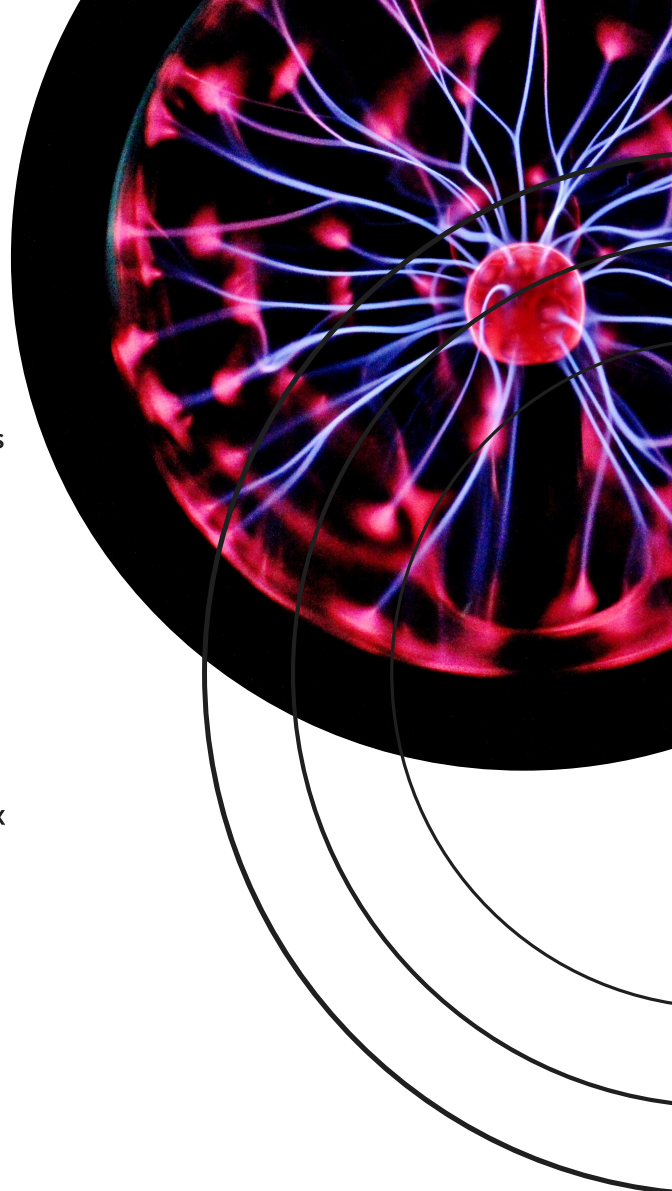
HOME DEPARTMENTS

- American Studies
- Anthropology
- Biological & Agricultural Engineering
- Biotechnology
- Chemistry
- Civil & Environmental Engineering
- Clinical and Translational Science Center- FUTURE
- Cultural Studies
- Earth & Planetary Science
- Ecology
- Education
- English
- Evolution & Ecology
- Gender, Sexuality & Women's Studies
- Geography
- Graduate Studies
- Human Ecology
- International Agricultural Development

- Inspire-Tech
- Land, Air & Water Resources
- Library
- Math
- Mechanical Engineering
- Molecular Biology
- Native American Studies
- Neurobiology, Physiology, & Behavior
- Office of Public Scholarship & Engagement
- Office of Research
- Physics
- Plant Sciences
- Psychology
- Science & Technology Studies
- Sociology
- Transportation
- UC CITRIS

HOW PARTICIPANTS DESCRIBED THEIR WORK

- Mobility justice
- Community
- Inclusivity
- Environmental justice
- Program building
- Research support
- Career development
- Anti-racist
- Social justice
- Technology
- Underrepresented
- Sex & gender

- Impact
- Empower
- Needs assessment
- Social sciences
- Participatory
- International
- Complicated
- Disruptive
- Mentoring
- Advocacy
- Math
- Consultation

- Research strategies
- Evolution
- Speculation
- (De)Humanization
- Robinhood wannabe
- Values
- Pushing boundaries
- Feminist
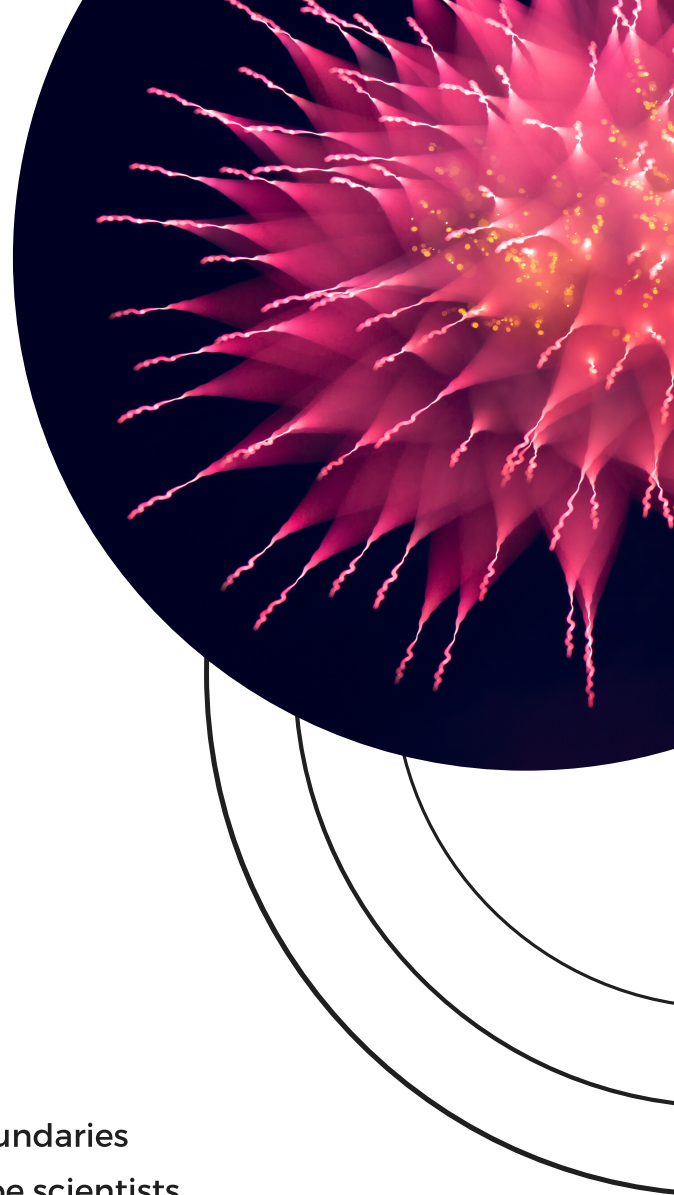- Science
- Reproductive justice
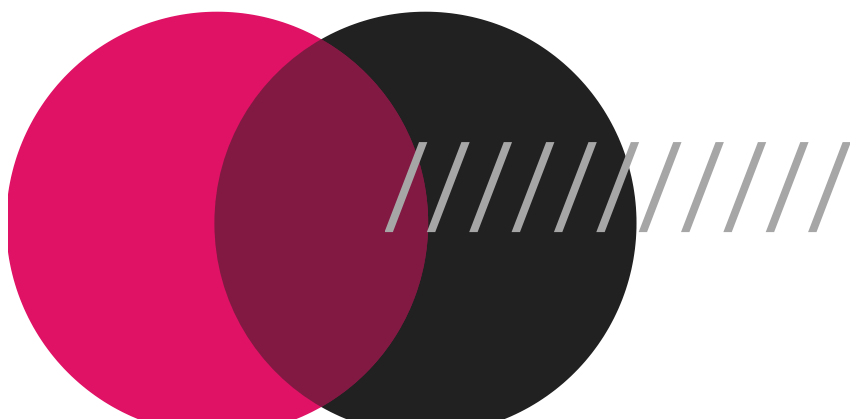
OBJECTIVE

Create community space for those invested in using feminist science approaches for change.

PROMPTS

01 What is your goal in coming to this group?

GOALS

- Transform graduate education and postdoc training
- Better serve/support diverse student population
- Engage more collectively with other scholars in other disciplines
- Push the boundaries of what science is
- Push the boundaries of who can be scientists
- Provide career support for
- students who are interested in non-academic jobs
- Explore careers in feminist sustainability

OBJECTIVE

Identify challenges in integrating feminist science approaches to current STEM training at UCD.

PROMPT

01 What are the challenges/ongoing barriers to doing the research you envision?

CHALLENGES

- Funding
- Power dynamics
- Hierarchies
- Merit and promotion
- Lack of interdisciplinary academic relationships
- Spatiality
- Compartmentalized knowledge
- Narrow structure/framework of research
- Isolation
- Ideas around what is science
- Ideas around who gets to do science/ who gets to be scientists

- "Bootstrapping"
- Inequality
- Underrepresentation of minority groups
- Inequality
- Patriarchy
- Capitalism
- Sexism
- Racism
- Classism

OBJECTIVE

How can we think about helping each other to develop visions—with the goal of coming together to do a small collective project to help us identify ways in which we can collaborate?
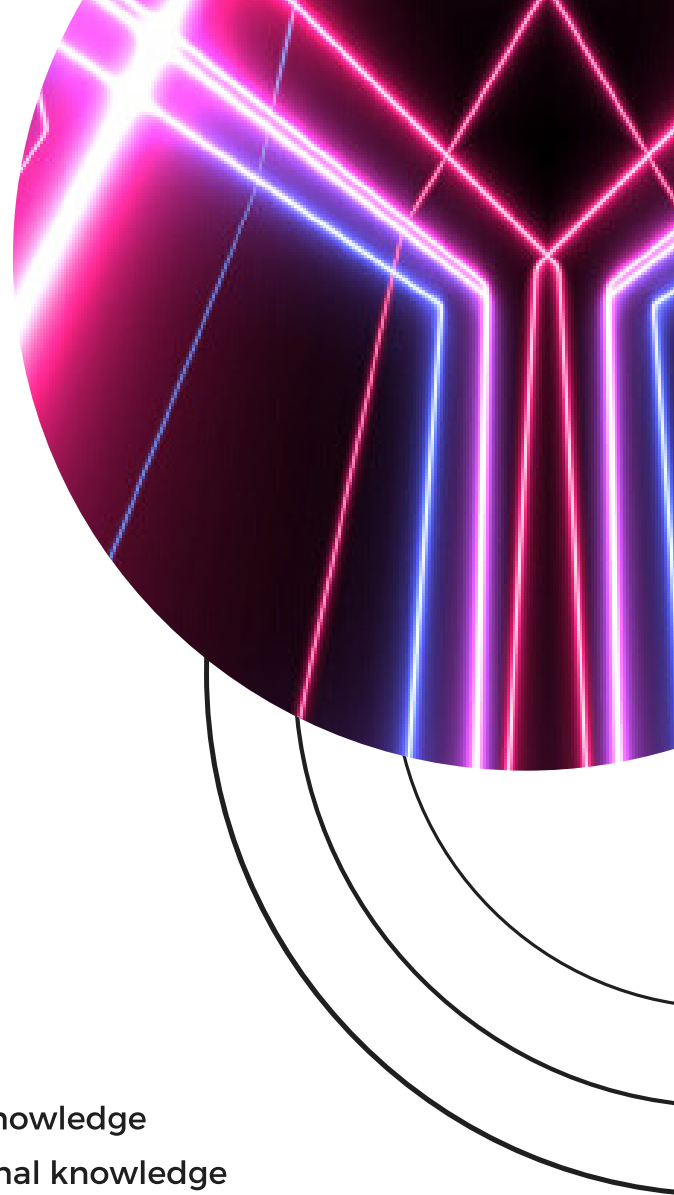
PROMPT

01 What is your vision for transformation in research?

VISIONS

- Funding
- Resources
- Feminist Science "Commons"
- Thinking about training and education separately
- Experiential learning
- Open science
- Collaboration
- Equitable credit
- Agency
- Community engagement

- Feminist knowledge
- Intersectional knowledge
- Transnational knowledge
- Representation of minority groups
- Equality
- Racial justice
- Environmental justice
- Disability justice
- Gender justice

Dream project integrating social justice/feminism into research/work. Challenges to achieving this goal.

I hadn't thought much about this before today. So, I'll start w/what my job/goal is: create community amongst graduate students of color in order to improve student success and increase retention in Master's, PhD & post-doc groups.

Integration of social justice: I'm unsure about this, as the goal itself feels inherently social justice oriented.

Challenges: faculty buy-in/support. Lack of resources to implement meaningful programming. Early burnout: I serve all STEM students of color and 1st gen students but that is too many for me to meaningfully engage with. As a Black woman doing this work it tends to feel devalued in a way that it might not be if I were a white man.

My experience in STEM thus far has mostly involved finding myself as the only woman of color in the room: whether it be lab space or a meeting room. Since starting Grad school, I have been fortunate to find many coworkers, supervisors, etc. who are women of color.

However, I find that sometimes there is a strong internal patriarchal voice that comes from even the women scientists that I work with—this includes myself at times— which stifles the natural creative process and diverse points of view that women can bring to the STEM field.

My vision then is to initiate conversations with fellow feminists and women in STEM in order to address this internal patriarchy (conscious or unconscious) that stifles women's success in STEM.

This may include community support group that brings up these topics; perhaps a one-time seminar that invites women scientists in all different hierarchal roles to talk about recognizing unconscious biases and the voice of internal patriarchy.

These questions may include: being aggressive towards people who display their vulnerabilities; calling people "too sensitive" (a trait that is typically deemed weak and feminize); different cultural backgrounds.

What is dream or actual project integrating social or feminist justice that want to do or are doing?

I can't dream at the moment, to brought down by daily emails today. A project I am currently working on investigates environmental exposures for a farm-working, predominantly Hispanic community in the Central Valley. For this project, I incorporate feminist approaches with community-engaged best practices to design exposure sampling of air, water, and blood to determine levels of exposure compared to a California average. This is a social and environmental justice issue that addresses health concerns and consequences.

Discuss challenges that project would face.

Lots of challenges. There are challenges in terms of expense. The equipment is expensive. The analyzing is the most expensive. There are travel challenges. The site is 4 hours a way which means many 16+ hour days to travel to the site for meetings with community partners and residents.
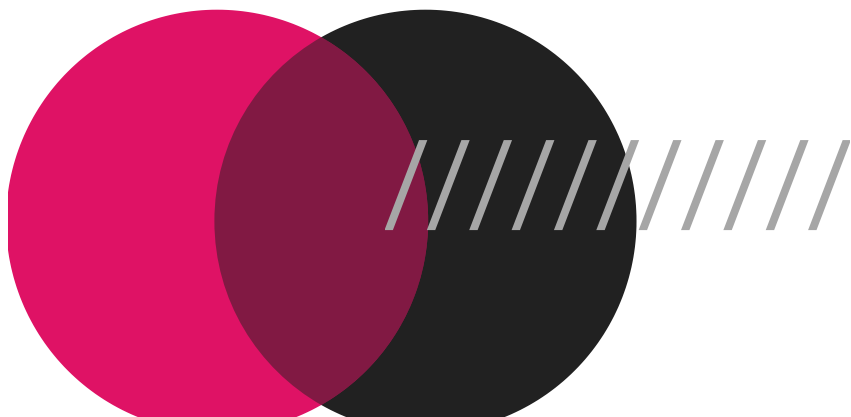
Community partners are not often responsive and not always well organized to deliver what they promise in terms of community participation and advocacy. Community partners do have a wealth of experience and knowledge when available. Multiple sometimes competing concerns re: our different agendas and interests. Very time consuming particularly for untenured faculty (me) and incredibly worthwhile. Additional challenges I have experienced in the past are gatekeepers for publishing such cross-disciplinary work. For a number of feminist, gender academic outlets, it's not feminist or gender oriented enough. For socio-environment outlets it's not science enough.

What I'm finding most rewarding in my work right now (and what's kind of my dream project already) is working with four students who are underrepresented in STEM fields to examine the social justice and equity implications of renewable energy development in the US. I met these students when I was teaching a GE class in Spring 2018 (Introduction to World Regional Geography), and followed up with the entire class to ask if anyone wanted to do research with me on this topic. 5 of the 36 students responded, and 4 of them are in STEM fields - Bioinformatics and Biological Systems Engineering - as well as underrepresented in these fields (2 women, and 2 first generation to college men of color). This has been an amazing opportunity to work with students who bring to the table such a different set of expertise and analytical tools than I have, and also to be able to talk with them about the contested terrain of knowledge production and the ethics and political economy of science. We meet weekly, and update each other about our lives first, then dig into the research we've been collaborating on.

The biggest challenges we've faced are that, as a postdoc, I'm not classified to provide research units, so have been scrambling to figure out how to work around this to provide support to these students to gain research experience. Also as a postdoc, I feel guilty that I don't have supplemental research funds to compensate them. Research experience is one of the best paths to retention for these groups, and I'd like to figure out how to make this a more accessible experience.

This isn't currently a research focus for me, though I can explore how research might support my goal of learning about feminist science studies in order to integrate these ideas into how I view what constitutes scholarly communication. This in turn will help me build a more comprehensive collection of resources for researchers. I see my role as connecting researchers to resources of all kinds and I have the opportunity to introduce or support people in asking different questions through their research if I have an awareness of what this might look like. I have a privileged background in that as a female scientist. I never experienced or recognized gender-based barriers and so I am here to gain empathy and learn the ways I can support women/ underrepresented people in science. And I am very interested to learn how science could be done differently if feminist ideas are incorporated more consistently. I do have the opportunity to design research to inform my practice and that in my profession. A challenge is that I am only in a supportive role and measures of achievement in academia are a pervasive constraint.

Consider Power Dynamics in research but also training environments.

1 Dream: Develop a criterion for researchers training success that addresses assumptions about what a scientist must be= power to the trainee.
Trouble the concept of "fit" in lab/hiring/dept./disciplines culture

2 Dream: Center the communities being "studied/served"
Training in community engagement
Participant/subject review process

Challenges: "Objectivist" culture in STEM (ableist, etc.)
= "You can hack it or you can't"

Equality in STEM careers – academic & non-academic
-Where do PhDs end up in their career?
-How does the bias, inequality, and privilege influence those career trajectories/goals?
-How do graduate students disentangle their desire to stay in academia from the undue pressure/ extra emotional labor that is pushing them out? → how to then support students and change academia so they don't feel this way [HUGE DREAM]

Challenges:
-How do we evaluate these feelings from PhDs?
-Defining specific instances and proving their gravity to those in power [Deans, Faculty, etc.]

I work with communities of smallholder farmers and a network of women in Guatemala. Much of the research agenda for this project was determined by an NGO that aims to improve rural livelihoods. My dream would be for the NGO's vision to match the reality of the project outcomes. Yet, as much time as I have spent in these rural communities, I do not know whether what "we" (myself and the NGO) perceive as a solution is actually right approach. Our surveys still take top-down assumptions about measures of wealth and material well-being that I know are problematic. Yet, when the NGO relies on donor funding and needs to report these measures, we seem caught in the development discourse of measuring what we— not the communities— decide "counts".

Dream: Collectively decide feminist research methods across social sciences.

Vision: Translational researchers (those who conduct research to advance human health) design and conduct research that is informed by communities

Challenges:
1) Those who are not engaged in research that falls under the narrow category of CBPR (community based participatory research) have trouble imagining what community-informed research looks like or how to achieve it
2) Communities often do not know how to engage scientists or how to contribute to research
3) Scientists are reluctant to pursue research questions that fall outside of traditional or current research funding priorities
4) Many researchers are already spread too thin to adopt what is viewed as the "additional work" of infusing their research with broader perspectives
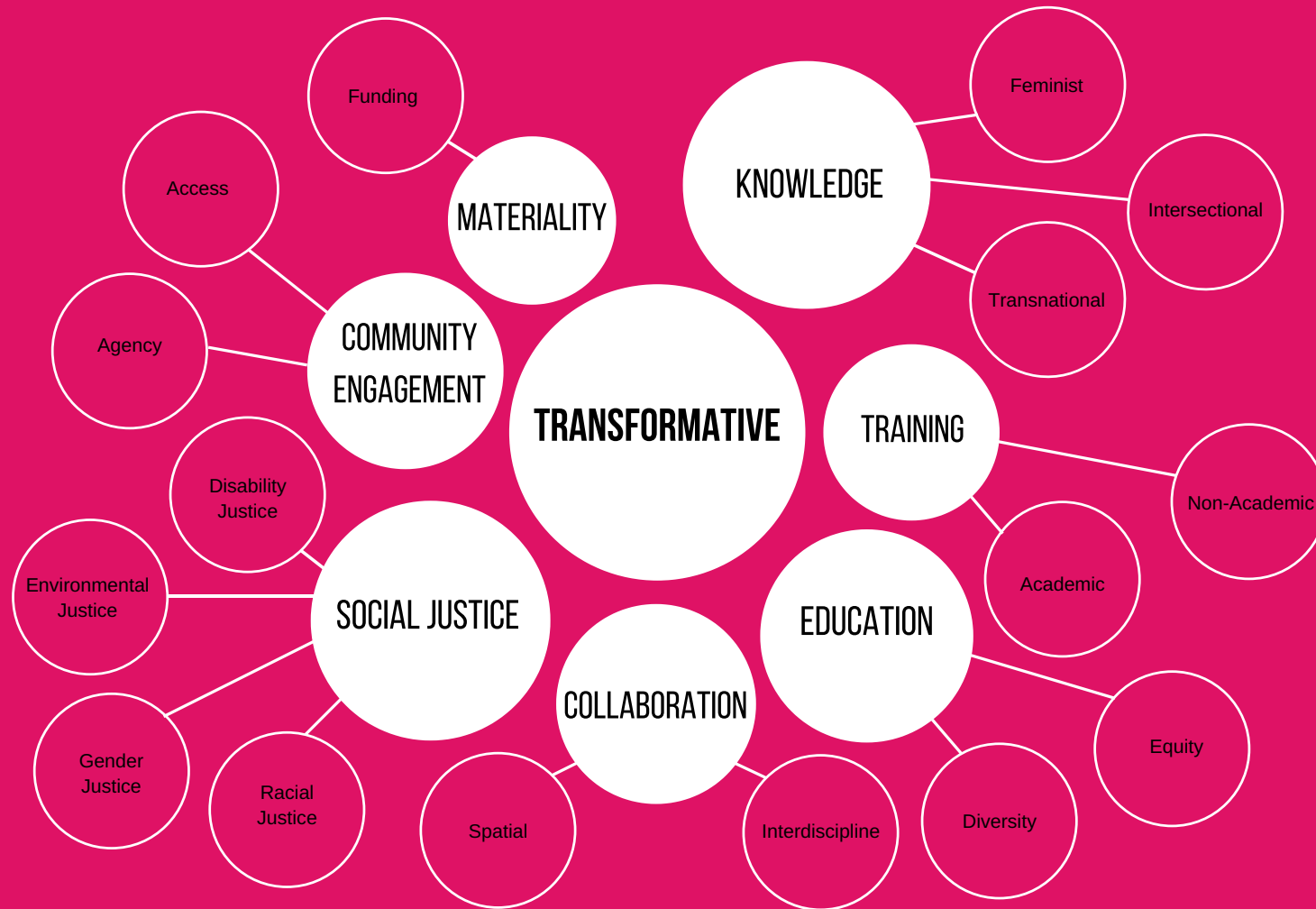
As a librarian I am constantly seeking ways to support the community across disciplines. Seeking new ways to help students/researchers answering questions that push ourselves to think farther or why?

My dream project would be to develop/ work with STEM librarians across the state, country, world to develop collections that integrate science & feminist theory. S we are bringing the STEM librarians & Gender/Women's studies/Cultural librarians together. By working together, we break down the silos the institutions typically put us in. We also can reach the Feminist studies community that ask STEM related questions & the STEM communities that ask feminist studies questions. Basically, I want to break down the silos and support a more holistic look at science & feminism. I also would like more
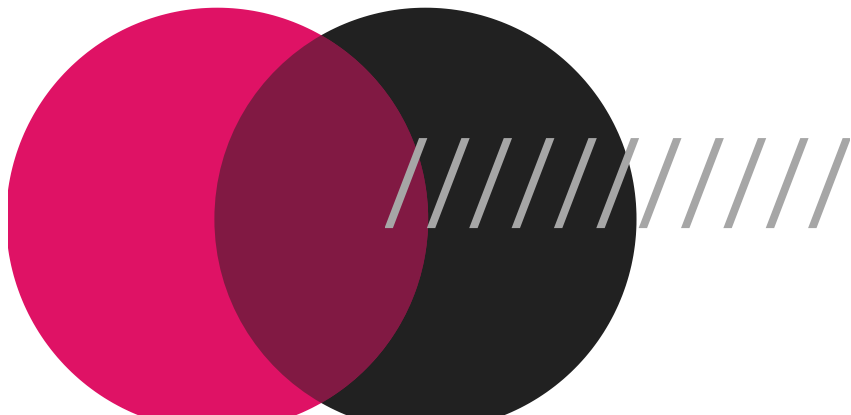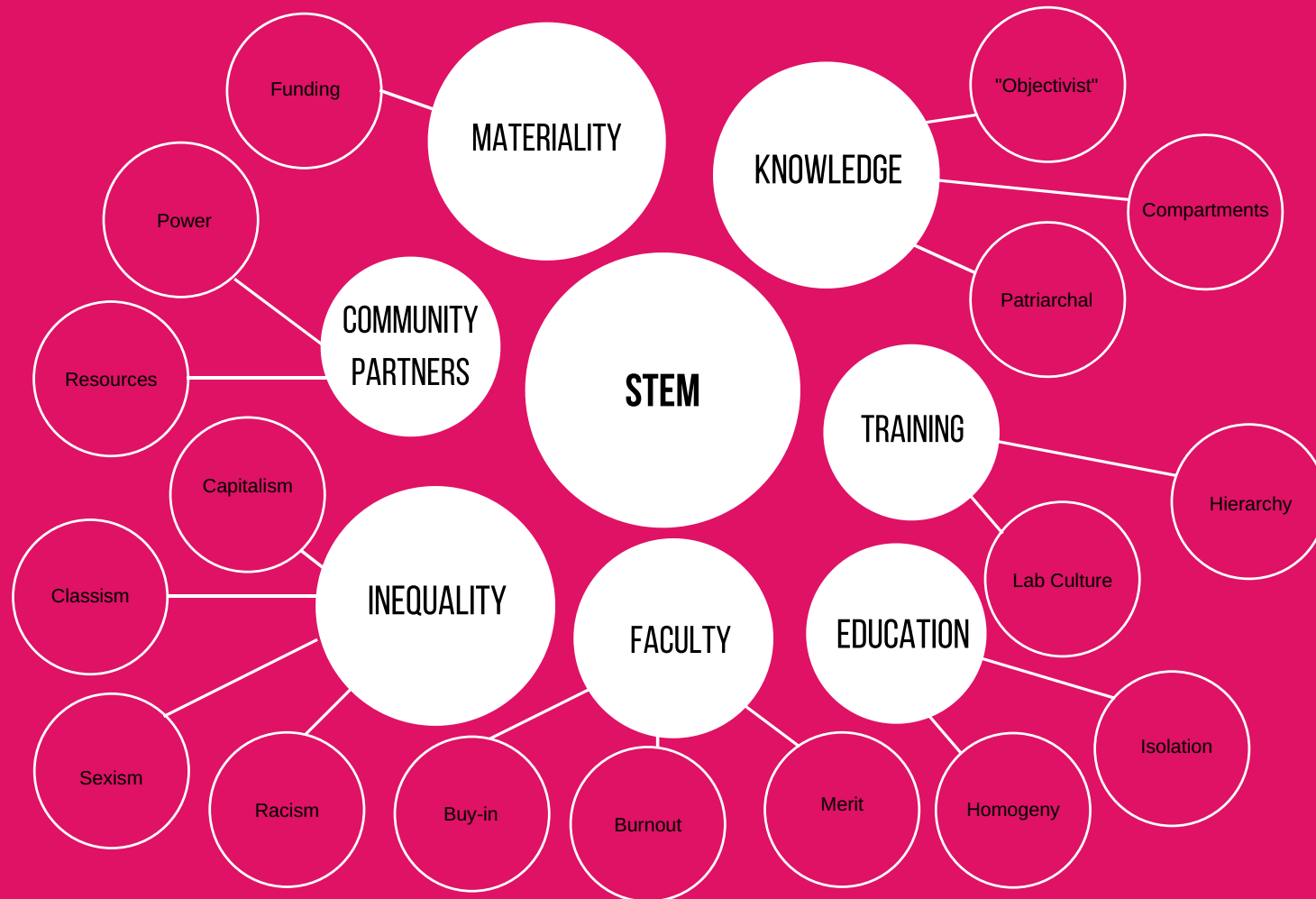
VISIONS OF
FEMINIST SCIENCE

CHALLENGES TO FEMINIST SCIENCE

research in the science/feminism fields to purchase for the library. Have collections that inspire these questions and support publishing in this area. Integrate, infuse feminist studies & STEM in the library.

Mobility Justice: Transformative vision of knowledge & practice in transportation in mobility.
-Research that starts not from the "norm" but rather seeks out knowledge from those most marginalized & centers their knowledge & expertise.

Challenges:
-Need to build the specifics of the project w/ mobility justice activists.
-Assumptions upset traditional norms in the field for proper research practice.
-Audience—who is this for?
-Specific to general?
-Limitations of my own knowledge/expertise/experience/assumptions.

I. Not really research dream but research/academic structural-dream- how do we:
1) Study how federal & state & private (NGO etc.) funding shape our STEM/ Social justice agendas?
2) How do we change these paradigms of funding agendas?
3) Ideally, how do we arrive at less stratification in academics for a more equitable, less stressful situation to allow & further research inquiry (instead of constantly seeking grants/contracts that follow agendas we rank & file academics did <u>not</u> support or arrive at?)

II. How to translate our research and STEM basics K-12 level for better STEM education of the traditionally underserved groups & majority groups to allow a batter more democratic structure in society & a more inquisitive general public that will not be led by ideologies blindly- (that is, let's not become another Nazi society!)

III. How do we find out how to change the Academic STEM paradigms to recognize the large # of cultural assumptions inherent in the "objective" science that aren't really objective, yet still keep public trust in STEM results?

Starting from causes of racial disparities in infant mortality rates in the US
        -such as access to healthcare, racism on interpersonal & institutional levels

Create a model town— UC Davis where multiple approaches to lessening the forms of racism are enacted for multiple generations to gain data over people's lifetimes.
        -e.g. everyone in the town gets free & quality healthcare (not just maternal care)
        -economic disparities are removed by basic income and maximum income caps where excess income goes to the city for everyone's benefit
        -educational opportunities are the same for everyone in schools in the town

This contrasts with the approaches that try to single out one factor and also approaches that only consider maternal care as important. It is also in contrast to the kind of research that constantly demonstrates that racism is a problem in that it takes this knowledge and then tests out how to fix it.

Challenges:

-economic inequality that is based on racial designations (racial capitalism)

-sexism
-racism
-thinking interdisciplinarily about projects/ working across academic/ non-academic borders

My dream project:

I want to have a queer feminist lab that is built from critical commitments to social justice, transformative justice, and openneness. And here I mean openness as understood in terms of Open Access and the Commons. I want the UC to take this seriously and transform every one of their labs into open laboratories It would be a Queer feminist science commons.

Other necessary requisite commitments/ Manifesto demands:
-feminist
-disability justice
-environmental justice
-gender justice
-transnational thinking and inquiry
-decolonization
-coalition building
-art, poetry & speculation
-collaboration
-accountability
-responsibility
-critical design & architecture
-anti-capitalism
-anti-racism
-abolition

Theoretical Project:
          -encouraging the expansion of the "kind" of literature offered in English classes to undergrads
          -incorporating literature— especially lit/stories/speculative fiction by marginalized groups,
          women, BIPOC, into science classes and scientific practice.

I think reading and even creating stories collectively w/ labs or research about what might happen, what could happen, and what ideally will happen could help reframe the goals of research & possibly encourage the acknowledgement that all research & scientific production has material effect and there is agency within the lab or group of researchers to imagine and speculate about those effects in order to shape them intentionally. Also, reding speculative fiction can help researchers understand marginalized or underrepresented people's fears associated w/ science and also hopes for it which might be completely different than those of the dominant group/people in power.
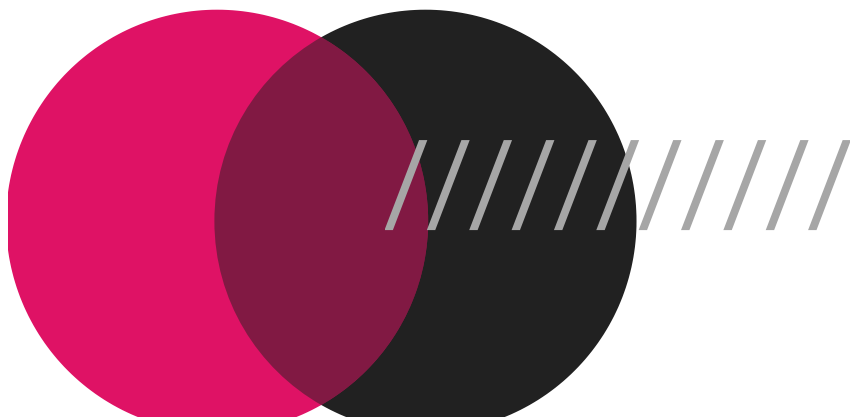
OBJECTIVE

Thinking about Science Fiction vs Speculative Fiction vs Visionary Fiction. How could we bring these tools to feminist science?

PROMPTS

01 What are the histories/origin stories in your field/discipline?

02 What are the assumptions in your field/discipline?

**03** How does that frame the possibilities going forward?

REPORT BACK

- Think of knowledge as a natural resource, what that means for academic field work
- Certain branches of academia are trying to be pluralistic about different topics but there's still a valid form of knowledge creation, and scientific method
- As we're trying to democratize knowledge, we're still writing a sort of fiction
- The invention of emotional barometer in a classroom setting and how that could be productive or not

- Dialogue between two robots and humans/non-humans getting disrupted
- The restriction of coding language
- What will language look like in the future? Distilled and universal? Ambiguous?
- Stories that exist but until they're told in a way or the dangers of telling stories a certain way if they're interpreted by the mainstream
- The importance of creating your own narrative as a point of connection
- How our politics are not embodied in disciplines

SCIENCE FICTION	SPECULATIVE FICTION	VISIONARY FICTION
Everything the same but... technology	Reimagining social structures	Speculative fiction with justice vision
	LeGuin—trying on different structures	Realistic and hopeful
Space		Utopic
Knowledge in science and technology (projecting)	Designing backwards	Questions dominant narratives of power
Arthur C. Clarke Asimov	Pulling is previous problems, or ignored problems	
	dystopic	clear motive (not amoral)
		Whitehead
Forward thinking		
	Alternative histories and how would that have changed our present or future	Deconstructs power dynamics
Technological solutions to problems		Specifically disrupts
Anticipating future problems		Afrofuturism
Takes for granted history of progress	Speculative fiction of what?	Has a clear purpose with specific instructions on how to intervene
	Encoing/Decoding	

Imagining

How do authors integrate science and how scientists integrate science fiction?	Reproduction in disciplines/ interdisciplinary spaces	Enactment of different worlds.
		Challenging linear understandings of time and process
	Norms/Assumptions	
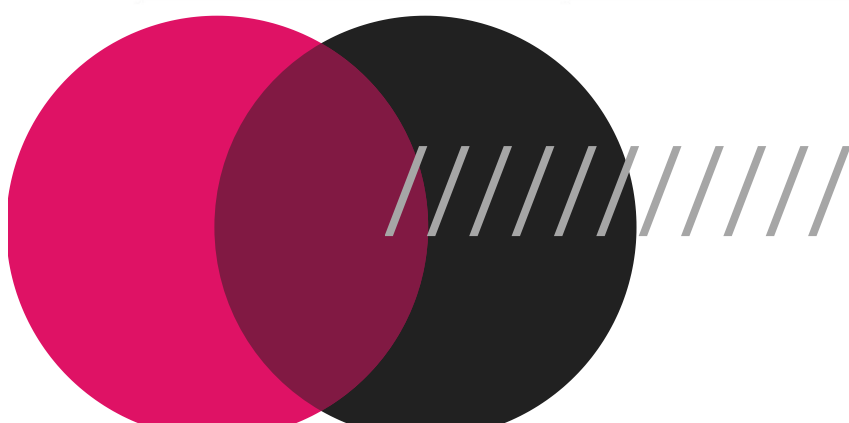
OBJECTIVE

Continuing the conversation about Science Fiction vs Speculative Fiction vs Visionary Fiction, think about Visionary Fiction as a didactic opportunity to work together to imagine change.
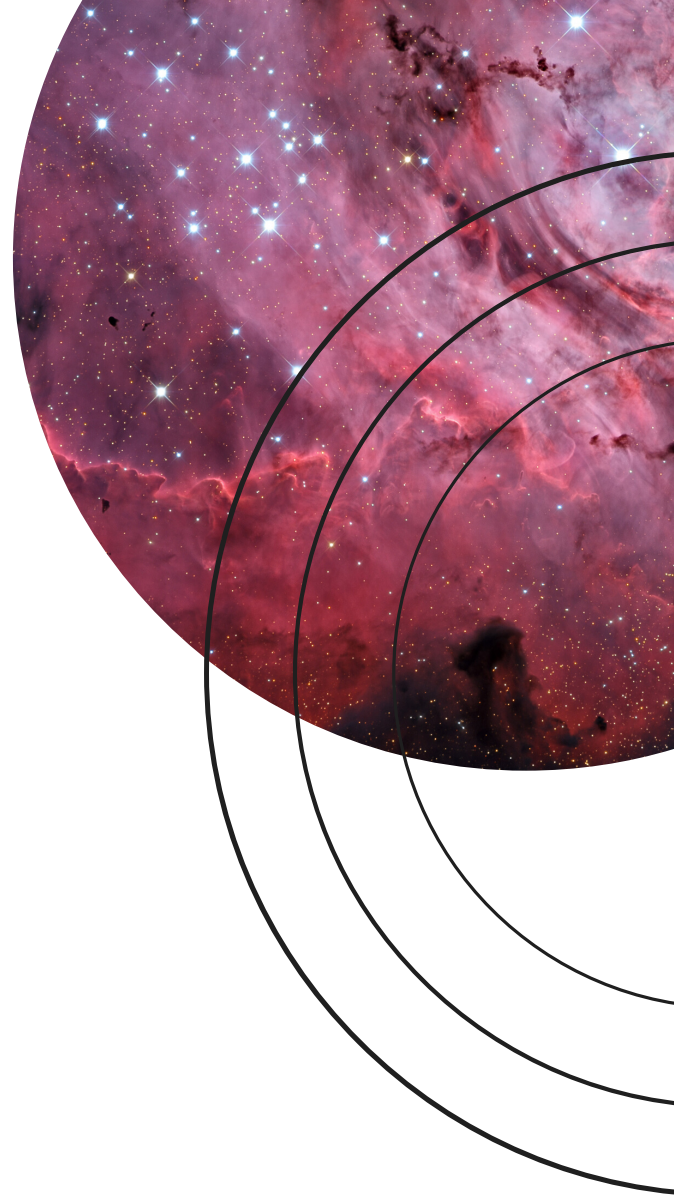
PROMPT

01 What did people notice about the speculative fiction free-writes?

THEMES

- Instability

- Tensions between seen and unseen

- What you can say/ not say

- Tension between the work that needs to be done and the structures that oversee the work

- How constrained the future feels

- If you're not "down" with the norms here, then why are you here?

THEME

- Devaluation of different subjects
  - Connecting different subjects
- Challenge lab relations
  - Humans, animals, materials
  - All in knowledge production
  - Different relationships involved
- Practices of learning and study as relational
  - NOT individual- Recognize and promote relationships
  - Ancestors, machines, other humans
- De-center individual
- Physical space/ Spatiality

SETTING/STORYLINE

- Lab/field space
- Bee extinction
  - How to foster care?
  - How to "bee" kind?
- Addictive honey?
- Passing on knowledge?
  - Robots, humans, plants
  - Dances
  - Holding history on their bodies in pollen

- Problem: New feminist method to teach
  - Revolutionizing the robobees, organizing robobees
    - Robobees learn from bees (How do bees learn?)
    - Reprogram humans
    - Some bees want to be human
    - Sting/inject or extract knowledge
- Bee ART get rid of queen
- Renegade feminist/ POC bees intervene
- Holistic, connect what is often not connected, mysticisms, dreamworlds
- Time shifts, different temporality, bee time?
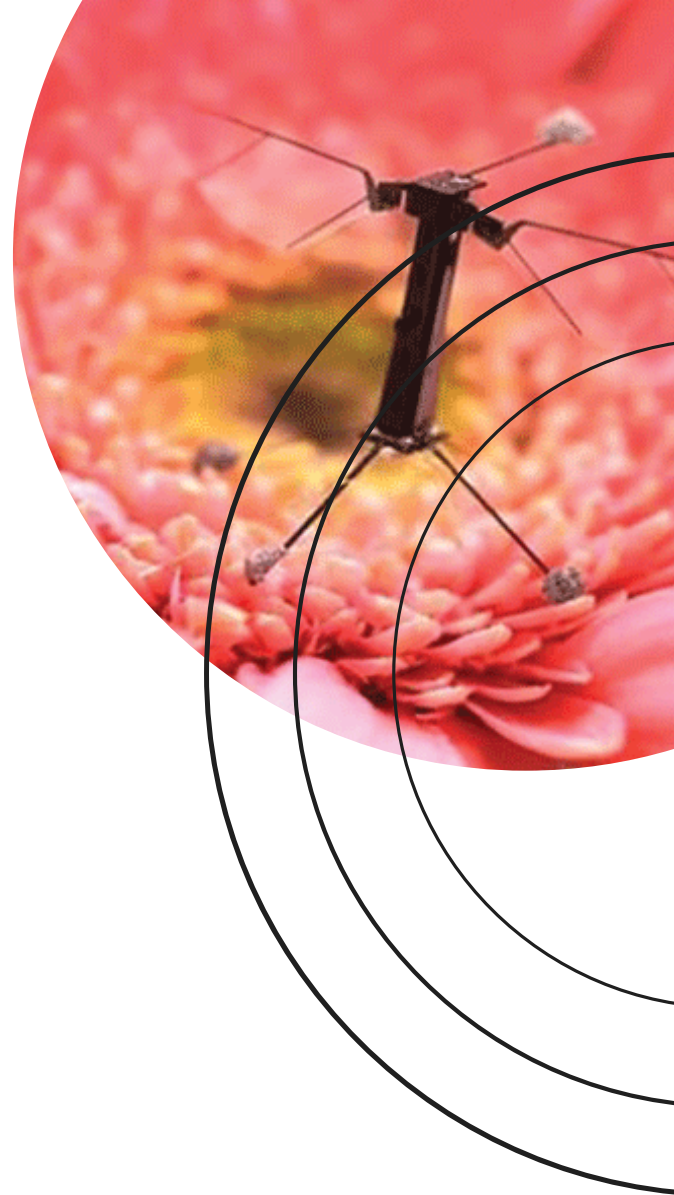
OBJECTIVE

Think about hierarchies and how they influence the types of research questions that we can ask, the type of work we can do, how we ask those research questions, the methods we use.
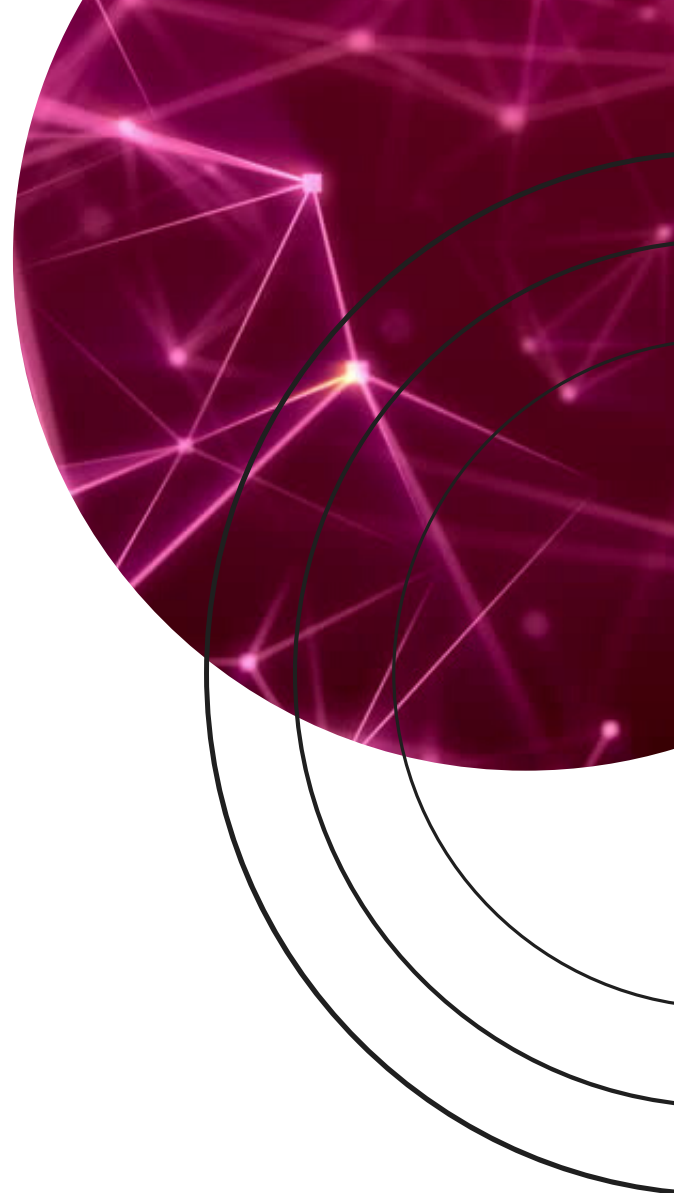
PROMPTS

01 How can we can develop more of an awareness of the complexity of hierarchies and research and do better, more intentional research as a result?

02 What are the alternative structures or other things that already exist that we might use to challenge traditional hierarchies?

REPORT BACK

- How to "open source" knowledge
- The challenges of the capitalization of knowledge and how "no findings" don't count.
- How models of knowledge production are racialized, gendered, classed
- Who gets attacked for their mistakes?
- Why are the higher ups the most resistant to change?
- Grad students, researchers are excited about open sourcing, yet they have the most at stake.
- Infrastructure as social and technological

- Holacracy- a holistic, decentralized structure of management
- Associations
- Accessible, participatory structures
- Healing work that's happening in a lot of movement spaces right now. The university is a system designed to produce trauma, so to figure out alternatives we also have to be engaged in this other type of work.

OBJECTIVE

Think about labor, unspoken labor/emotional labor and identity and the culture of belonging and the labor needed to belong there.

PROMPTS

01 What are your responsibilities in your current position? What is extra labor?

02 What is extra labor?

REPORT BACK

- Research
- Publishing
- Grant writing
- Teaching
- Service
- Mentoring
- Career counseling
- Academic advising
- Managing
- Skill-sharing
- Networking

- Moral/ emotional support
- Negotiating
- Balancing personalities and egos
- "Cheerleading"
- "Face" of events
- Humility
- "Token"/ Model Minority
- "Squishy piece between two cogs"
- Being a human
- Diversity work
- Emotional labor

OBJECTIVE

At our last meeting we asked members to reflect on all of the meetings and activities we engaged in during the quarter.

PROMPTS

01 What did you get out of the group?

02 What would you like to see happen as a result of this group?

REPORT BACK

- Helped intellectual/ emotional health
- Spurred creative drive
- Empowering
- Connection to others
- Expanded approach to interdisciplinary work
- Power of problem-based approach in collaborative work
- Power of asking people's thoughts
- Visioning across different roles
- Different expertise represented
- Frameworks shaping feminist conversations in different contexts
- Openness to process
- Things don't have to be perfect
- "Shoot first, ask questions later"

- Reading list/group
- Collective brainstorming
- Problem-solving
- Get others on campus involved
- Create alliances
- Be ambassadors
- Feminist training
- Curriculum
- Models
- Event/ conference
- Outside speakers
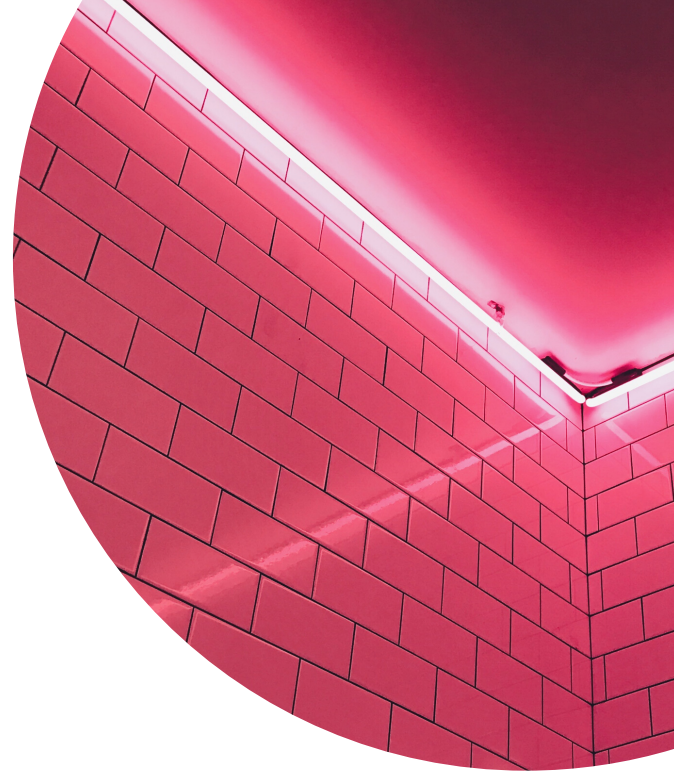
ASKING DIFFERENT QUESTIONS

This group explored how changing research questions and research agendas will change who is in STEM and the knowledge that is produced. Meetings included discussions of how to recognize and address issues of historical bias and cultural complexity, communities traditionally underserved by science, interdisciplinary collaborations, and the inclusion of diverse voices and approaches in STEM research, education and training.

Transformative

Interventions

Mission

Culture

Collaboration

Inequality

Equity

Feminist Science

Funding

Visions

Resources

Challenges

WORKING GROUP

Roles

Science

Labor

Fiction

Physical

Speculative

Emotional

Power

Visionary

Hierarchy

Merit

Knowledge